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THE NATURE AND TREATMENT OF CHOREA.*

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I FEEL it a great honour to be invited to open the discussion to-night, in the presence of medical men of deservedly such high reputation.

It is not in my province now to urge the advantages of the Investigation Committee. They are probably recognised by all present. Nor in speaking of chorea will it be possible to touch on all the points on which that Committee desires information. The ages of the patients so affected, their sex, their family history with reference to this or other neuroses, the time of year, or the condition of the soil in which the disease is most prevalent—all these are considerations that are of interest, as bearing upon prophylactic measures. But these are what we may call rather the environments of the disease; and it has seemed wise to the authorities of your branch that to-night we should confine ourselves to two main questions:

* Read, at the request of the Investigation Committee, before the West Somerset Branch.

1. The nature of chorea, as evidenced by its pathology and its pathological anatomy, with special reference to its dependence on or connection with heart disease, rheumatic or otherwise.

2. The treatment of chorea—not only as a practical point of surpassing interest to us in our relation to the public, but also because, to some extent at least, the treatment sheds some light on the nature of the disease itself.

First, then, as to the nature of chorea. It is convenient to speak of it as a disease. It is really a symptom, or a series of symptoms, in relation not with the nature of the morbid change, but with its seat.

In opening up this portion of the subject, we have to deal first with the position of possible lesions.

Cases of hemichorea teach much that is valuable of the cerebral origin of the disease. In a majority of cases of ordinary chorea the symptoms are apt to begin unilaterally, but there are a certain number in which the unilateral condition is permanent. These may or may not be associated with modifications of sensation, and even with some disturbance of special sense. Hemichorea is more usually left-sided than right.

The symptoms of chorea are not only frequently excited by fright, worry, anxiety, despondency, emotion in general, but many psychical phenomena manifest themselves in the course of the disease—irritability, taciturnity, impairment of memory, incapacity for thought, general intellectual weakness, and in some cases delirium, hallucination of sight, especially at night, and even violence.

Besides these psychical phenomena, the motor symptoms are such as point to affection of the various motor centres for the face and lips, the arm and leg, that have been shewn by Hitzig and Ferrier to be in the immediate

neighbourhood of the fissure of Rolando. In one form, the external muscles of the abdomen and the levator ani are involved. In the majority of cases the incoordination is associated with muscular weakness. Unilateral facial palsy may coexist with chorea, and disappear with it. All these points demonstrate the origin of chorea to be cerebral.

Looking, then, at *post mortem* records, the same view is borne out.

In one case of fatal hemichorea, Dr. Broadbent found no lesion, except a little lymph in the lateral ventricle. In Dr. Mabboux's case of right hemichorea with melancholia, without muscular paresis or anæsthesia, there was a blood-clot in the left lenticulo-optic region, surrounded by softening. The hæmorrhage involved the internal capsule, but not the most posterior portion of it, invading also the postero-external part of the optic thalamus and the tail of the corpus striatum. The mental symptoms were accounted for by chronic fronto-parietal meningo-encephalitis. The cerebral origin of hemichorea is well seen in some cases examined after death by Charcot. Here hemichorea followed hemiplegia; and there was not only anæsthesia of the skin on the hemiplegic side, but on the paralysed side the organs of special sense were more or less involved. The lesion was a cicatrix of the posterior end of the optic thalamus and the nucleus caudatus, and the hindermost portion of the foot of the corona radiata. In two cases the anterior corpora quadrigemina were affected. The changes which concerned the chorea were located in motor fibres, situated in front and to the side of those parts of the corona radiata which preside over the conduction of sensitive impressions.

Hemichorea and anæsthesia are also found preceding hemiplegia, the lesion involving the posterior half of the optic thalamus. Tumour in this position may cause hemichorea, which may or may not be followed by hemiplegia.

Two cases of fatal hemichorea have lately been published in the "*Archives für Psychiatrie*." The one was a case of post-hemiplegic left hemichorea; and the lesions found were two small separate hæmorrhagic spots in the right thalamus. A spot of softening in the right occipital lobe. The left cerebral hemisphere was healthy. A spot of softening in the left cerebellar hemisphere. Hæmorrhage in left half of the pons between the trigeminus nerve on the upper end of the pons. In the deeper part of this organ, and of the medulla oblongata in both pyramids, there was a moderate amount of hyperplasia of the interstitial tissue, more on the right than on the left side. In the cord there was degeneration of both posterior columns throughout their whole extent, especially on the left side. In the lower dorsal region there was a fresh myelitis, especially of the posterior columns.

The other case, also of left hemichorea, shewed aneurism of the ascending aorta, chronic entarteritis, cystitis, and œdema of the lungs. The cerebral dura and pia mater were more or less thickened: the upper surface of the brain discoloured. There was ecchymosis of the upper cortex, and a granular condition of the ependyma of the fourth ventricle. The spinal dura and pia mater not quite healthy. The substance of the cord firm. On minute examination, in the right hemisphere of the brain the vessels were blocked with cells, and small extravasations were seen, particularly in the cerebral convolutions and in the paracentral lobule. Numerous spider cells in the upper part of the white substance.

Commencing spots of softening in the upper part of the right half of the pons, near the right crus cerebelli ad pontem. Secondary descending degeneration of the right pyramid through the pons and medulla. In the cord there was degeneration of both postero-lateral columns, chiefly of the left: moderate degeneration of both columns of Goll, especially in the dorsal region, more slight in the cervical.

The following notes are of three fatal cases of my own, in which a minute examination was made.

1. Amelia H., 17. Choreic three weeks. Much jactitation of both arms and both legs, and of facial muscles. Difficulty in protrusion of tongue and in speech. No cardiac bruit. Slight opisthotones. Mind rather weak. She became suddenly comatose after much violent movement. Right pupil much dilated, left contracted. Death.

Some clots of blood were found lying outside the brain on the right side in the arachnoid space. It was thought possible that this blood had come from a small orifice in the right lateral sinus. Small capillary emboli were found in the arteries of the corpora striata.

A fringe of bead-like excrescences of lymph, that could be detached by the finger, were found round the auricular boundary of the mitral orifice.

2. Emily S., 17. Rheumatic history. Systolic bruit at base. Bilateral movements. Difficulty of articulation. Is confused and somewhat delirious, but had had some diplopia and confusion for several months before the chorea. No catamenia for four months. No pregnancy. Was improving at the end of three weeks, but suddenly manifested dyspnœa, and died in three minutes.

Several large bed-sores. Brain a little soft everywhere, especially in the central white matter. Nothing abnormal

to be discovered by the naked eye, except that on the convexity a little grey matter came away here and there with the pia mater. A little thickening of vessels of the medulla oblongata, and some increase of white corpuscles in them. A minute vegetation on each corpus arantii of the aortic valve. The auricular border of the mitral valve rather thickened, not beaded. A firm clot in right ventricle, which extended some distance into the pulmonary artery.

3. John T., 17. Bilateral violent jactitation. Hallucinations of sight. Morbid movements ceased on the ninth day, but he rambled on in delirium for seventeen days, and died of exhaustion.

Dura mater very adherent along superior longitudinal sinus. Consistence of brain firm. The whole brain very full of blood. The corpora striata and optic thalami perfectly healthy to the naked eye. Pons rather injected. Olivary bodies seemed fibrous. The whole of the medulla oblongata rather tough. Microscopically, emboli were seen in the vessels of the corpora striata, and the vessels and perivascular spaces were dilated. Spots of sclerosis in the olivary bodies. Some beading of the auricular edge of the mitral valve. Both lungs profusely studded with small indurations, varying in size from a pin's head to a small nut. Each of these indurations seemed to be an infarctus, formed apparently by a thrombus in an ultimate branch of the pulmonary artery, behind which in some cases the vessel had given way and caused hæmorrhage. Some of these spots were on the road towards disintegration and abscess. Spleen small, and contained an infarctus.

Besides the *post mortem* appearances that prove the cerebral origin of chorea, Dr. Reynolds long ago formu-

lated certain reasons against the spinal cord being primarily the seat of the disease. He said: "Choreic spasm of this incessantly repeated character is not a phenomenon of persistent spinal irritation. (Tonic spasm is the mark of such a condition)."

The movements, unless very severe, and even then to some extent, can generally be somewhat controlled by the will, and it is certain that the purely asensuous reflections are not amenable to volition; at all events to the same extent.

The spasmodic contractions cease during sleep, whereas the phenomena of excito-motory character are increased by the removal of volition.

The direction of attention to some other object likewise diminishes the intensity of choreic movement.

The special occasions of increase or of induction of choreic movements are the attempts at volitional action and emotional changes.

To these dicta may be added the fact, that in cases of hemichorea with anæsthesia, the motor and semory impairment are on the same side.

Other lesions have been found, varying somewhat in position, both in the brain and spinal cord.

Blocking of arteries (posterior and middle cerebral) and consequent softening, with hyperæmia of the surface of the brain, and swelling and softening of the anterior columns of the cord.

"Inflammatory changes of the cells of the cortex and basal ganglia, as also of neuroglia and Deiter's cells in the cord."—*Meynert.*

"Inflammatory changes of spinal cells and neuroglia, and thickening of the ependyma of the central canal."—*Elischer.*

"Dilatation of vessels, hæmorrhages, or sclerosis of the corpora striata, and in the cord a similar condition of the central portion of each lateral mass of grey matter, comprising the root of each posterior horn."—*Dickenson.*

Plugging of anterior and antero-lateral arteries in the cord.

Ross thinks the corpora striata and optic thalami the main centres of lesion in chorea, and perhaps, too, the cortical convolutions near the corpora striata; and that the condition of the nervous matter is rather that of anæmia than of hyperæmia.

Aitken found the specific gravity of the corpus striatum and optic thalamus very much diminished in proportion to the specific gravity of other parts of the brain.

There are instances, too, of congenital chorea from incomplete development. Charcot mentions hemichorea in children caused by partial atrophy of brain. I have met with two cases of congenital chorea, in both of which the arrest of development seemed to be due to maternal fright during pregnancy.

1. Henry S., 13. Has had chorea from his birth. His mother went about seven and a half months with him. She was frightened when about two months pregnant. He has always been as bad as, if not worse than, at present. He eats, drinks, and sleeps well. Lately has learned to say a few words, but previously could not speak at all; but he could hum tunes in an indistinct way and make various noises. Cannot stand, nor hold anything firmly. He is in constant motion, except when asleep. No family history of rheumatism. No heart disease. Had fits about three years old; not since. Is quite intelligent.

Under arsenic and good food, and a good deal of

trouble in teaching him to move to a tune, he learned to stand upright, and to walk with the help of one hand of another person.

2. Master E., 4. Was born prematurely. The mother, when pregnant, was frightened by a snake. No nystagmus. Sees and hears well. Has never stood. Sensation good. Reflexes good. Left hand the strongest; both hands choreic. He cannot feed himself. Tendency to contracture of left leg, but it can be extended. Right leg much contracted, and all attempt at moving it causes pain. This contraction is worse during sleep.

I thought this child was suffering from malformation of the anterior portion of the internal capsules, and subsequent lateral sclerosis.

Another theory has been put forward by Elischer, that chorea depends on diffuse irritative processes of the peripheral nerves of the brain and cord, such as proliferation of nuclei in the connective tissue of peripheral nerves and along the vessels of the cord. This theory is interesting as bearing upon the so-called reflex chorea of pregnancy.

Besides the psychical, the sensory, and the ordinary motor phenomena of chorea, we meet sometimes with an irregularity of heart in such patients, doubtless of a choreic origin. Pigmentation of the nuclei of vagi has been found in one case. In most, however, of such examples of chorea of the heart, the irregularity depends on imperfect nutrition of the cardiac ganglia of the sympathetic, and is, perhaps, one of the few instances of the sympathetic being involved in this disease.

Dr. Henry Chapin, *New York Medical Record*, speaks of chorea of the respiratory muscles and larynx. In one of his cases there was a barking noise during expiration.

There was sudden spasm of the pharyngeal muscles; the epiglottis was raised; the adductors quickly contracted the glottis. In the second case there was spasm of expiration, with or without the above conditions. The parts most usually implicated therefore in chorea are the basal ganglia and the cortex in their immediate neighbourhood; and the various regions of the internal capsule, the part of this organ that is involved determining the co-existence or not of anæsthesia. By separate lesions, moreover, various portions of the cord are diseased. The crossed pyramidal columns, the seat of descending lateral sclerosis, are notably free.

What, then, is the nature of the lesion implicating these localized areas? Dr. Broadbent sums up the matter by saying: "Embolism; other disturbances of nutrition in the ganglia; peripheral influences which arrest the reflex process; direct lesion of the ganglia from fright; mechanical lesion of the corpora striata, the optic thalami, and their vicinity, may each and all give rise to the phænomena of chorea."

To take embolism first. Out of a good many cases of chorea treated by myself, I have only notes of ninety-six on the question of heart disease. I have only been able to recognize heart disease by physical examination in seventeen of these—a less proportion than the 27 per cent. obtained by the Committee—although a large proportion of my cases had either been rheumatic or owned a rheumatic family history. Out of five autopsies, however, heart disease was found in three. Dr. Sturges says, what we shall all probably agree to, that vegetations, especially of the mitral valve, or pericarditis, are found in the majority of fatal cases. He thinks, however, that this condition rarely contributes to the fatal issue. It is

found equally in those cases that die with and those that die of chorea; and in some marked cases the heart is found healthy.

The position of the beading of the mitral valve accounts for the frequency with which there is no morbid sound heard. These vegetations are generally attached to the auricular surface of the mitral valve, neither impeding the free action of the valve, nor materially obstructing the free flow of the blood towards the ventricle.

The so-called reflex chorea of pregnancy is so common in young women that Dr. Wilks never sees chorea in young adult women without making special investigations as to the existence of the pregnant state. Considering how markedly the brain, and especially the sympathetic in the brain, is excited by all kinds of disturbances in the pelvic organs, it would be by no means strange that under such circumstances chorea would be purely reflex. It is easily conceivable that from pelvic irritation the nutrition of the basal ganglia may be modified, and choreic phenomena result, as occurs in those numerous instances of chorea minor, which recover under almost all circumstances. But Elischer observed in a pregnant woman, who had suffered from chorea, nuclear proliferation and hyperplasia of the connective tissue in the corpus striatum, thickening of the tunica adventitia of the small vessels, the same changes in the tunica intima of the vessels of the lenticular nucleus, and division of the nuclei of the nerve-cells in the claustrum. The spinal cord presented thickening and nuclear proliferation in the walls of the vessels, inflammatory changes in the epithelium of the central canal, and nuclear proliferation in the connective tissue round the nerve-cells of the grey

matter; the latter presented a dull appearance, were destitute of nuclei, and filled with pigment; the white substance was hyperæmic; the lateral and posterior columns contained a fibrillary tissue strewn with nuclei. In the peripheral nerves the fibres were diminished in number; a large amount of connective tissue was interposed between them; there were small hæmorrhages in the interstices of this tissue.

Other observers also consider the chorea of pregnancy to be not reflex, but a propagation to the cord and brain of inflammatory conditions of the peripheral nerves.

The ephemeral duration of this form of chorea, as a rule, leads one to believe that these lesions are not common. In one of my own cases the phenomena seemed to depend on the presence of a lumbricus in the intestines, and to subside on the expulsion of the worm; showing, at any rate, that reflex chorea is possible. It is at this point, among others, that chorea may touch hysteria, the phænomena of which so often own, as their proximate cause, intestinal or pelvic irritation.

It is chiefly in connection with pelvic irritation that we see the best examples of rhythmical chorea. In the most marked case I ever met with, the arms and legs moved alternately with great force for some days together. The patient nearly sank from exhaustion. Pressure over the ovaries may cause temporary cessation of the movements. It is not to be confounded with chorea minor, but belongs to the systematic chorea of Sée, in which the involuntary movements are, so to speak, co-ordinated. It is, perhaps, more nearly allied to hysteria than to chorea.

Another form of chorea is seen in old people. There is no cure for it, but it does not destroy life. There are two types of this: one, in which the involuntary move-

ments, increased by attempts at voluntary motion, cease during sleep; and another, in which even during sleep there is no cessation of the movements. It is an emotional disease in the sense that the phenomena are intensified by emotion. It has no connection with rheumatism, and is often associated with dementia. The disease differs from senile trembling, in which the head is first troubled; as also from rhythmical spasm of the muscles of the neck. But it is probably nearly related to, or at least would form part of, the same group as paralysis agitans, and multiple sclerosis of the cerebro-spinal centres.

Charcot would place athetosis among the choreas, a condition in which there is almost constant movement of the fingers or toes; forced attitudes, which are exaggerated by voluntary movements, and which make it impossible for a patient to seize or hold an object.

But when all is said on the side of pathological anatomy, there remain a very large number of cases, with symptoms of greater or less intensity, in which the course of the disease necessitates the view that they are suffering from no permanent lesion. Such examples of chorea minor—of enormous importance to us as practitioners, because so common—used to be termed instances of functional disease. The term is not open to much objection if its meaning is explained; but the public are apt to understand the word functional as carrying with it the meaning of an absence of all lesion. That is assuredly inaccurate. That in the exquisitely-arranged system of the human body any derangement of the normal movements could take place without a causative derangement in the parts that rule such movements, would be an idea as paradoxical as that any movement could take place without destruction of tissue.

Functional disease means a condition that depends upon lesions that cannot be recognized easily, or at all *post mortem;* that are in their nature transitory; that are concerned specially with alterations of the relation between tissue and blood supply, either with difficulties in osmosis, or with changes in the character, or with variations in the quantity of the blood. And although any such interference with healthy laws would in time cause some tissue change; although probably such tissue change occurs, as by way of pigmentation of nerve-cells or partial atrophy; yet, when under good hygienic conditions—especially in youth, the period of rapid repair—the blood supply is improved, these tissue changes are recovered from, the morbid phenomena depending on them vanish; and if an opportunity were afforded of examination of the organ, nothing abnormal would be found—not because it has not been present, but because the morbid state has been perfectly recovered from.

With this limitation the expression "functional disease" may hold; and it is precisely this that is met with in the majority of cases of chorea minor. Look for a moment at the anatomy of the vessels that supply the basal ganglia. The branches of the middle cerebral artery that supply the corpus striatum are as different as possible from those that supply the convolutions of the cortex. Anastomosis between these latter are by no means free, but the small straight branches from the silvian artery that supply the corpus striatum are absolutely terminal arteries. There is a complete absence of anastomosis between them and other arteries. It follows, therefore, that a coarse lesion, like an embolus, in one of them, leads to destruction of tissue in the region beyond as a certainty; and that there is no possibility of the part

being nourished by collateral circulation. The symptoms of such a lesion are so definite, that they could not escape observation. When, therefore, we see so large a majority of cases of chorea recover, and recover without any muscular weakness, and without any incoordination, we may be certain that we have not had to deal with embolism of one of the terminal branches of the silvian artery.

Disturbance of the nutrition of the ganglia from whatever cause, many of these disturbances such as may be recovered from, afford the only possible explanation; and the truth of this statement is shown by the effects of rational treatment.

It would be interesting to follow out the modus operandi of the various exciting causes of chorea in this relation; of fright, for instance, mental worry, insufficient food, or the rheumatic diathesis. It is constantly said that the sympathetic is unaffected in chorea. How can that be, when it is the only channel of conduction to the branches of the silvian artery and others of the influence of emotion, so potent an element in the causation of the disease? The choreic phenomena do not manifest themselves as the immediate sequence of fright, &c.; but when the influence of emotion has been brought to bear on the nutrition of certain regions, a condition not immediately induced, the motor symptoms follow as a direct consequence of the impaired nutrition. The predominance of the female sex so affected is a proof of the influence of emotion. More gradually, and therefore less commonly recognised, are the choreic jactitations the result of insufficient food. The causation is twofold, mainly, of course, the poverty of the blood; but indirectly the deficient vis a tergo, from the inability of a

badly nourished and debilitated heart to supply the cerebro-spinal centres.

And then once more the rheumatic diathesis. Has this any influence over and above the direct lesion of emboli from the valves, or the reflex effect of pericarditis on the cerebral vessels? The comparative rarity of fatal results renders it difficult to answer this question, as disease of the heart has frequently been found in fatal cases where no physical signs have been observed during life. The relationship between the two conditions may vary also in different countries. According to observations made at Prague by Steiner, among 252 cases of chorea, only four appeared in the course of acute articular rheumatism, a proportion that differs very much from observations in England and France. But even in these countries there is a certain difference observable, as among 128 children affected with chorea, Sée found 64 cases of acute articular rheumatism; whilst so far our English observations go to show that, although the relationship between rheumatism and chorea is at least as close—indeed, according to Watson, even closer—yet the form of rheumatism is neither violent nor obstinate: the more acute, severe, and extensive the articular affection, and the more it is complicated, either in the beginning or at a later period, with cardiac affections, the slighter will be the choreic manifestations. On this point we await with interest the results of the vast material that is being gradually accumulated by the Investigation Committee; but if it is the case that the later stages and the slighter forms of rheumatism are those most usually associated with chorea, may it not be that (emboli and pericarditis being excluded) the more rapid circulation of a highly feverish state is less likely to lead to phenomena, which

own as their cause an impaired nutrition of the nervous ganglia, such as might more readily result from a feeble blood-supply, from a nutritive fluid deficient in quality, and one perhaps all the more fitted to allow thrombosis of the smaller vessels.

One of the main difficulties in the explanation of the connection between the morbid anatomy and the symptoms of chorea is, the ignorance in which we still are as to the exact position of co-ordinating centres in the brain. The appearances above cited are enough to prove that the brain is the chief organ implicated, and *that* in various regions. Some of the cases on record prove, too, that the cord is similarly affected, and mainly in its posterior regions. But in so far as we may apply to the human frame experiments performed on the lower animals, there are some facts that show how large a share the spinal cord in them takes in the production of the choreic symptoms. In an animal which suffered from general chorea, Chauveau divided the cord near its junction with the brain, and the movements persisted for several hours, until death, without being lessened in intensity or otherwise modified. The choreic movements were therefore not dependent upon the brain or cerebellum. In two other choreic dogs, the same experiment did not check the movements, which only diminished after section of the dorsal cord, and coincidently with the arrest of the cardiac pulsations. Legros and Onimus found that upon opening the spinal canal, and irritating the posterior columns of the cord with a scalpel, the choreic movements were enormously intensified. From variations in their experiments they concluded that the site of chorea in dogs is either in the nerve cells of the posterior horns, or in the fibres which connect them with the motor cells.

From the whole consideration of the pathology of the subject, we may conclude that chorea depends on imperfect nutrition of various centres of the brain and spinal cord; that this impaired nutrition may be—

1. Congenital; frequently depending on mental shock to the mother during pregancy.
2. Due to rheumatism, either from emboli, from thrombus, from a disordered quality of the blood, or from reflex influence of pericarditis.
3. Due to inflammatory changes, not necessarily rheumatic.
4. Due to emotional causes, acting through the sympathetic.
5. Due to insufficient food and debased hygienic conditions.
6. Due to reflex influence, especially pelvic and abdominal irritation.

Whilst as to the regions chiefly involved, they are—

1. The regions supplied by the short terminal silvian arteries.
2. The optic thalami.
3. The internal capsule, sometimes the anterior portion, sometimes the posterior, and then associated with anæsthesia, and occasionally with some affection of sight.
4. The motor area of the cortex.
5. The corpora quadrigemina.
6. The cerebellum.
7. The pons and medulla oblongata.
8. Sometimes the lateral and posterior columns of the cord; more frequently the posterior cornua and their connection with the motor cells.
9. Sometimes peripheral neuritis.

As to treatment. It is evident from the study of the pathology and definite lesions of chorea, that, whilst one general principle, that of improving an impaired nutrition of nervous ganglia or groups of nerve cells, will underlie all variations of treatment, yet differences will arise according to the intensity of the symptoms, the special conditions that may threaten the fatal event, the nature of the positive lesion, the direct or reflex causation of the phenomena, the presence of acute rheumatism, and of various forms of heart disease, &c., &c. It is a matter, therefore, of ordinary experience that chorea minor will demand a treatment somewhat different from chorea major. The former, except under peculiarly unfavourable circumstances, has a natural tendency to get well of itself; but in saying this, it is only fair to say also that it takes a long time to do so. Rest is a most important element in treatment: not rest in bed in these numerous minor cases, useful as it is in the more severe ones; but rest from excitement, from noise, from harsh words, from taking part in the struggle of life. In these respects even the wards of an hospital are a great advance on the ordinary home of the city poor; but I am far from advocating hospital wards, with their sights and sounds, as the best place for chorea. A private room, with a bright, cheerful nurse, is far more desirable. Then, too, the quantity and nature of the food should be such as the nervous system requires, mainly fatty and farinaceous material, at regular intervals, and taken with due deliberation; the spasm of the facial muscles often leading to bolting the food without proper mastication.

In my own cases at the Bristol Royal Infirmary I used cold affusion in the majority of cases of chorea minor for many years. The mode of using this remedy is of great

importance, as too rough-and-ready a method materially injures the patient. If the child is brought with gentleness and coaxing to the bath, and care is taken that there shall always be warm water to stand in, it will scarcely ever be frightened at the cold affusion. The pouring cold water over them should be done rapidly, but never so unexpectedly as to produce a shock. This remedy has always seemed to me to be beneficial, except in one instance, where the patient, who had lost her brother by drowning, could never be persuaded that she was not about to undergo the same fate.

I cannot speak with much personal experience of the use of electricity, as the nervousness of the little patients on the employment of this remedy has frequently seemed to render it more harmful than beneficial. But in many hands it has proved useful. Rosenthal prefers a continuous current, a stable current of moderate intensity being passed from the vertebral column to the nerves of the affected parts for three to five minutes. He has not been able to observe that the direction of the current exerts any influence upon the final result.

Charcot, however, states that he has found the ascending current increases choreic movements; the descending modifies them.

Perhaps one of the best methods for employing electricity is the one advocated by Dr. Dana in the *New York Medical Record*. He advises that a large sponge electrode of flexible brass (four by two inches) should be thoroughly moistened by salt water. The hair of the patient should also be thoroughly wetted. The electrode should be applied over the side of the head, above the ear, and on both sides if the chorea is bilateral. The other electrode should be placed in the hand of the affected

side. The electrode on the scalp is made positive. A stable current of three to six cells should be used.

Of all the therapeutical remedies given in chorea, most observers seem to agree in the value of the mineral salts. A certain proportion of choreic cases are marked by anæmia, though I do not remember having seen any quite chlorotic. Trousseau, however, speaks of chlorosis being common, and even of the chorea of pregnancy being due to the anæmia sometimes induced by that state. In the anæmic cases iron has often proved of signal benefit. Dr. Ringer says that in simple uncomplicated cases of chorea arsenic is far the best remedy. Its occasional non-success is sometimes owing to the undue smallness of the dose; and decided improvement often begins simultaneously with a freer administration of the medicine. When chorea has resisted smaller quantities, children may take four, five, or more minims of the solution. In one case, which rapidly improved, he quickly increased the dose, until the boy took twenty minims of liquor arsenicalis six times a day; and in another successful case the girl took fifty minims of the liquor daily.

Whether arsenic acts by increasing the power of the heart in moderate doses; whether in chorea, as in anæmia, it increases both the red and the white corpuscles, the exact opposite of its effect on the blood in health; whether its influence is primarily on the vascular system; or whether, as seems more likely, it acts directly as a nervine tonic, we are still in doubt. Nor, indeed, do we quite know how a so-called nervine tonic acts. Is it on the walls of the vessels, or on the nerve-cells themselves? I presume really on both, rendering the process of interchange by osmosis more facile.

It is a matter of observation that females require larger doses of arsenic than males. The marked preponderance of the female sex affected by chorea is also recognised. Much as may be said in praise of arsenic in chorea, it is probable that the experience of the profession may militate against Dr. Ringer's doses, both as being in most cases larger than necessary, and certainly as not being invariably well-borne.

Thirty years ago my old master, Dr. Bence Jones, came to the conclusion, after many observations, that all the salts of the metals, including even those of lead, hastened recovery from chorea. But pre-eminent above all—and in my opinion superior in some respects even to arsenic —are the salts of zinc. Many practitioners recommend the oxide and the valerianate. I should be inclined to prefer the sulphate, beginning, of course, with doses of one or two grains, and rapidly mounting up to ten or twelve grains or more, three or four times a day.

So far then the recognised treatment has been devoted to the general principle of improving impaired nutrition of the nervous centres. But certain complications may demand additional remedies; and of these complications perhaps insomnia is the most troublesome. For this large doses of morphia have been given, hypodermically and otherwise, and doubtless with good results. We have, however, to remember that the majority of our patients are young, and that opium is not a comfortable remedy to use much with them. Very often, too, good results can be obtained by the bromides, by chloral hydrate, by hyosciamus, by camphor.

The experience of a single individual does not go for much; but in chorea minor I have not seen much advantage from chloroform. It has seemed to me in chorea,

as in tetanus, to do absolutely nothing, beyond giving the patient a short sleep. This advantage, however, may have its value on occasion.

As to Calabar bean, which has been useful in Ogle's hands, one would view its administration with grave caution. The effects on the spinal cord are paretic. Apart from the paralysis sometimes the concomitant of chorea, apart from the muscular weakness so frequently observed, it is difficult not to feel that tremor, spasm, convulsion, incoordination, ataxy, contracture, and paralysis are very closely allied, and all form one family group. From this point of view Calabar bean might be contra-indicated. But a grain of experience is worth an ounce of theory, and any observation made by Ogle commands respect. In chorea, my own experience of Calabar bean is almost nil.

Acting on Dickenson's observation of dilatation of vessels, ergot has been given, and with good results.

A vast amount of benefit may be derived from a system of harmonised movements. The marching to a tune, the modified gymnastic exercises, never too prolonged, such as is obtained in many infant schools, seem gradually to, so to speak, teach co-ordination. I remember being much impressed many years ago with Dr. Güggenbuhl's system at his institution on the Abendburg for the treatment of cretins. A large number of these patients, on admission, were afflicted with incoordination of various movements, and one of his first efforts was directed towards bringing these movements into harmonious action. Every movement, therefore, in these early classes was made to the beat of a drum, and generally with the best results. Movement to music is, I think, one of our best weapons in chorea minor, especially if

chronic, and is not without its use in the congenital form of the disease, and in the severer varieties of chorea major.

The treatment of chorea major is, however, not so straightforward. We have to deal not only with a more incessant and more violent jactitation, but almost invariably with some temporary mental weakness of the nature of imbecility, and with considerable incoordination of mastication, of swallowing, and of protrusion of the tongue. We have to trust to the resources of our art for giving us, in the treatment of this variety, that which we need so much in all diseases, the element of time. We have to consider by what portals death is attempting to enter, and to vary our remedies accordingly. Such patients run a risk from the condition of the heart, from cerebral rheumatism, from bed-sores and the fever consequent upon them, and still more from general nervous exhaustion.

To give time for restoring the impaired nutrition by food and nervine tonics, it is essential to prevent the system from being so rapidly worn out; and for this purpose agents must be had recourse to that we should shrink from using in the milder varieties of chorea.

Personally I have no experience of tartar emetic in my own cases, although I have seen it used largely in London in student days. Trousseau speaks well of it on the recorded results of earlier physicians, and its advantages in the treatment of delirium tremens would bear out the idea. It was given, I presume, to relieve cerebral hyperæmia. As in so many cases we have to deal with an anæmic badly nourished brain, its exhibition would seem frequently to be contra-indicated; and, apart from its depressing effects on the circulation, it is often difficult enough to feed our patients without artificially adding

constant nausea to our perplexities. The digestion, too, is frequently already disturbed in this disease. Drs. Bonfils and Gillette have, however, expressed themselves in its favour; but in analysing their results they do not seem to have obtained rapid cures except in those instances of a second or third recurrence of the chorea, conditions which are always more easy to treat than the first attack. These French physicians have a special mode of administering this drug. They give it in gradually augmented doses for three days, and then they allow an interval of four or five days before a fresh series of doses is entered upon: this alternation of antimony and repose persisting until the symptoms disappear.

Various sedatives may have to be used with a free hand. Opium and chloroform inhalation may be as useful in this form of the disease as they are generally unnecessary in the milder varieties. Cannabis indica, so strongly recommended by Corrigan, is a weapon not to be despised; and conium is beneficial.

And when the motor phenomena are peculiarly violent, and we fear not only great exhaustion, but the formation of general bed-sores, the process of waddling, as explained by Trousseau, has certain advantages. The carefully surrounding each limb with cotton wool, and then, with full allowance for free respiration, the binding the waddled limbs to the trunk, seems to modify some of the dangers of the disease. I can speak well of it in two or three instances. But almost every remedy must yield in importance to constant feeding. The advantages of this feeding in the Weir Michell system for treating hysteria, the immense benefits derived from it in the cure of mental diseases, will be equalled, and even surpassed, in the morbid condition we are now considering.

Seclusion is very specially necessary. The freedom from even the least excitement is absolutely requisite; and therefore in this variety the wards of a hospital are contra-indicated.

As recovery progresses, much of the treatment recommended in the milder forms will be beneficial, and especially open-air exercise; but cold affusion is badly borne by the graver cases generally, although prolonged warm baths are useful.

It would not be right to pass over the use of strychnia, largely administered and lauded by so distinguished a physician as Trousseau. In his hands, and in gradually augmented doses that sound exceedingly large, it seems to have been useful. I have never had courage to push it to the extent he advises; and in smaller doses I have not thought it beneficial.

May I add one word, in which all the senior members will agree? One remedy may be useful for a series of years, and then may fail. Medical constitutions vary, more or less, in cycles of years. They have been proved to thus vary in France with reference to chorea; and in the exhaustive paper published by Dr. Strange, of Worcester, he relates how useful for a term of years he found wine in chorea, and how inert afterwards. This view opens up a series of points not included in our discussion to-night, but waiting for light from these very labours of the Investigation Committee. The influence of medical constitutions on treatment will have to be unravelled by a consideration of the disease on broad lines in this and other countries, with reference to atmospheric conditions, to soil, to family neuroses, to hereditary disease in general, and to the habits of the district and even of the nation.

INGROWING TOE-NAIL.

BY

THE EDITOR.

THE treatment of Ingrowing Toe-nail is so unsatisfactory as to be almost an opprobrium to our art. And yet, of the minor surgical ailments few have been honoured with more attention. Such men as Paré, Dupuytren, Desault, Sir Astley Cooper, and Colles have deemed the subject worthy of their special study; while a host of others, too numerous to mention, have at various times recommended plans of cure as diverse almost as their names.

Amidst all this diversity there appear to stand out only two facts on which all are agreed. The first is, that the complaint is caused by the wearing of tight boots; the second, that it is not ingrowing of the toe-nail at all, but overgrowing of the toe-flesh. With reference to the first point, it seems to have struck no one as peculiar that the leaving off tight boots is by no means a cure for the malady. *Sublata causa, tollitur effectus* ought to hold good here as elsewhere. And if we say, with greater show of reason, that it is simply an outcome of the civilized habit of wearing coverings for the feet of any sort, which prevent the toes from spreading out as we walk, and demand that to give a cure we must walk bare-footed, we might still require proof that savages do not have ingrowing toe-nail. I strongly suspect that they do. As to the second point of agreement, that it is rather overgrowing of the flesh than ingrowing of the nail, we might here also ask why, if these writers believed this, they so

diligently attack the innocuous nail? True, if there were no offending toe-nail, there would be no recalcitrant sore flesh, and the prompt annihilation of one of the offenders would extinguish the disagreement. But the nail grows again, and the flesh rebels as before, and the trouble is soon as bad as ever.

In the following account I have systematised what I know of the causation of the complaint, and what I have found to be the best means of treating it. And let me say at the outset, that as I believe the causes to be various and distinct, so am I convinced that success in treatment depends on an accurate appreciation of these. One treatment for ingrowing toe-nail is as unscientific as one treatment for ulcerated legs.

DEFINITION.—A chronic, painful, traumatic inflammation of the tissues at the margin of a toe-nail. The inflammation is usually attended with the formation of granulations and with suppuration; and it is nearly always of the great toe-nail, usually on its outer side. There is a form of so-called ingrowing toe-nail which is not attended with suppuration, but is dependent on an accumulation of epidermic scales between the nail and the flesh; and, very rarely, the disease may exist in one or other of the lesser toes.

CAUSATION.—In civilized countries we must always recognize the element of compression, or at least prevention of expansion, inside a boot. It is perfectly conceivable that the condition might exist in individuals who never wear boots; but for practical purposes we must take the boots for granted. They are a constant concomitant; and if not a prime, are probably a contributing cause. It is, however, a cause which we cannot remove. We must treat the toe inside the boots. Indeed, the

patient will probably have removed the cause long before we see him. He must crucify the flesh even more than the monks who walked on hard peas, who will wear tight boots over an ingrowing nail. Looking beyond the boots, we find that the causes may be arranged as Intrinsic, or depending on peculiarities in the toe or nail; and Extrinsic, or dependent on the direction of the toes or the condition of outlying structures in the foot.

I.—INTRINSIC, *i.e.*, in the nail, or in the surrounding tissues, or in both.

1. *In the nail.* In some people the nails in the fingers and the toes—and I have noticed that the peculiarity is usually coincident—are convex or arched, and dip deeply into the surrounding flesh. In such cases, in paring the nail of the great toe it is difficult to carry the knife or scissors completely round, and thus there is frequently left behind a small spicule or pointed piece, which readily insinuates itself into the neighbouring flesh. Matters are sometimes made worse by pulling at this piece, "tearing it to the quick." The flesh swells and conceals this small piece of outlying nail; it is overlooked, sets up irritation, is concealed in the swollen flesh, and the condition is developed.

2. *In the flesh.* Some people have a redundance of flesh in their toes, and their fingers as well. They are said to have "flabby" fingers. In these the flesh overlaps the nail, and in the foot the confinement of the boot, added to the soddening perspiration under the overlapping flesh, readily starts the condition. Once started it continues, and suppuration along the margin of such a toe may continue for years. Fortunately, it is the least painful and most easily treated of all the varieties.

3. *In both nail and flesh.* The existence of both the

above conditions—an arched toe-nail, and an excess of soft tissue—will frequently be found associated with the malady. Alone, or in combination with extrinsic causes, this double condition, with the mere wearing of boots, is almost enough to cause the complaint. In this case also it is not likely to be severe.

II.—EXTRINSIC, or from causes lying outside the nail and its surrounding tissues.

1. *Flattening of the arch of the foot.* That flat-foot may be a cause, and a frequent and important cause, of ingrowing nail is not a generally recognised fact in surgery. It will be well, therefore, shortly to explain the manner of its production.

Part of the explanation is given in the previous number of this *Journal*, where Professor Ogston describes the causation of flat-foot. The completion of the account lies in the attempt of the point of the great toe to become the anterior pillar of the arch of the foot. When the natural arch is destroyed the anterior pillar, the ball of the great toe, atrophies, and the patient rests the weight of the body on the whole of the flattened sole. At the end of the step, when the knee is flexed, the weight is transferred to the anterior portion of the foot. This is naturally the pad at the root of the toes, particularly of the great toe; but when the plantar ligaments are relaxed and perhaps painful, this support is not available. Recource is then had to the only available help, the only tendon which passes from the top of the arch of the foot to its anterior extremity, viz., that of the flexor longus pollicis. By its contraction the tip of the great toe is brought to the ground, and acts as a substitute for the natural pier. But constant use of the toe in this wise induces hypertrophy of its tissue, and consequent over-

lapping of the toe-nail. By easily understood stages this hypertrophy becomes irritation, inflammation and suppuration where the flesh is crowded over the edges of the nail, and we thus get the condition fully developed.

It is simple flat-foot, pes planus, and not splay-foot, or pes valgus, which is most likely to start the mischief. If splay-foot causes it, it is more by everting the toe from pressure on its inside in walking, and so squeezing it against the second toe. And it has seemed to me that not the worst cases of flat-foot—those which require operation—but the moderate cases, which require no special treatment for the flattening, are chiefly associated with ingrowing nail. Three cases of flat-foot, on which I had to operate, had no sign of ingrowing nail.

Flat-foot, in varying degrees, I believe to be the most important cause of ingrowing toe-nail, and all the more so that the ordinary modes of treatment are futile to cure it.

2. *Eversion of the great toe.*—Though forcing of the toe outwards by wearing pointed boots, or the dislocation attendant on chronic rheumatic arthritis, or on bunion, might be included as causes under this head, yet I believe its production will more frequently be found to depend either on a habit of walking with the limb much rotated outwards, or on a congenital deflection of the toe itself. This too close proximity may merge into a passing beyond, and then we have the second toe, perhaps with the third, overriding the great toe, and evidently causing the complaint.

I have had to treat this condition in three members of one family, in whom the tendency was well known to exist, and was sought to be minimised by the wearing of broad-toed boots.

3. *Inversion of the lesser toes.*—In this case the same result as the preceding is produced by a deviation inwards of the second and third toes. How it is produced I do not know. I have seen it in a boy whose father told me he suffered from the same thing in his youth, and that another son had it in less degree. In two Infirmary patients—also boys—it was not a family peculiarity. In all there was suppuration and pain in walking, though not as severe as in other varieties.

TREATMENT.—From what has been said it will be seen that the scientific position of ingrowing toe-nail is chiefly as a symptom, the most prominent and distressing symptom, of several other conditions. By removing these causative conditions we do away with the common effect—the ingrowing nail; and we will be successful according to the accuracy with which the cause is diagnosed and counteracted.

I.—1. Where the cause is intrinsic and resident in the nail alone, it may usually be remedied by careful attention to the "toilet" of the nail, using a knife rather than a scissors, and cutting from behind forwards obliquely, so as to give the nail a pointed shape. By this means the leaving behind of sharp portions at the margin which are insinuated into the flesh is rendered less likely. If the granulations are exuberant I would recommend the application of a crystal or two of chromic acid, which leaves a hard dry scab, under which the sore heals kindly. Careful trimming of the nail will usually ward off the complaint in the future.

2. Where the cause lies in a superabundance of flesh in the toe, a condition which is usually accompanied with thin, tender skin, which perspires and chafes readily, I believe the best plan to be: first, the application of

chromic acid, if necessary, and thereafter pressure either by strapping or by elastic. Every night the affected toe is to be surrounded tightly from the tip upwards by thin strips of adhesive plaster taken out of boiling water. This may be removed in the morning and replaced by an India-rubber cap, such as is worn over a sore finger during a *post mortem* examination. The toe is thus rendered and kept anæmic by compression; congestion is removed, and the tissues get more firm and resisting in the course of a few months.

In such cases I have sometimes noticed that the feet perspire freely, and then the wearing of fine worsted socks, the nightly use of a foot-bath into which enough sulphuric acid has been poured to make the skin tingle, and sprinkling some powdered boracic acid by means of a pepper-box over the foot every morning, will expedite he cure.

3. When there is a combination of malformed nail and overgrowth of flesh, a judicious combination of the methods just described will probably effect a cure. Here, if anywhere, a scraping of the nail, making it thin and yielding, ought to do good; but I am doubtful of the utility of this procedure. The nail is too firmly bound down to the matrix to yield much to lateral pressure; and constant scraping, I think, has a tendency to develop an irritative hypertrophy of the nail itself. If all these or similar plans fail, there is nothing for it but removal of the nail in a manner to be described presently.

II.—1. Of extrinsic causes by far the most important is flattening of the arch of the foot; and unless this cause is clearly recognised and successfully met our treatment will almost certainly fail. If the explanation just given be admitted, the indication is clearly either to do away

with the necessity for the compensatory action of the flexor longus pollicis, or to raise the toe above the possibility of its coming to harm—*i.e.*, to *force* the ball of the great toe to become the anterior support of the arch. To restore the arch of the foot, probably the most scientific treatment would be to make the patient recline on his back for some weeks, and permit the stretched plantar ligaments to regain their tone. A pathological excess of such a proceeding may be seen in what I am in the habit of describing as "postural club foot," so frequently seen after prolonged rest in the supine position, as for hip-joint disease or fractured thigh, or such like, where the foot is not supported. The temporary use of a plaster of Paris casing might be suggested; but this proceeding would probably, by pushing up the plantar ligaments, prevent them becoming shorter. In actual practice it will be found a very efficient plan to wear a small pad of several thicknesses of chamois leather or flannel under the ball of the great toe. This pad may be put on every morning, and retained in position by a collar of thread or elastic carried round the root of the great toe. The toe, thus elevated beyond the reach of harm and relieved from its illegitimate labour, soon regains its normal condition. After a few months the pad may be gradually given up; and with care the condition need not recur.

This treatment first suggested itself to me some years ago, after a careful study of the case of a friend who had for years suffered much from ingrowing toe-nail. He had had the nail twice removed, and had undergone with praiseworthy patience every conceivable form of palliative treatment—all without relief. The use of a pad for six months, and some rest to the instep, permanently cured the complaint.

2. When the cause is eversion of the great toe, from whatever cause arising, the treatment is by no means easy. The use inside the boot of springs, such as Biggs' apparatus, to keep the toe inverted, is both difficult and unsatisfactory. What I have found most satisfactory is a pad between the great and second toes, stopping short of the sore part. The pad may be constructed of several layers of flannel or chamois, and is kept in position by two collars round the root of the great and second toes respectively.

3. I have seen only three cases of the second and third toes overlapping the first and causing ingrowing of its nail. In one case several members of the family had suffered from the same complaint. In these cases the condition was easily remedied by wearing a double band of tape, so arranged as to keep the two offending toes turned outwards and pushed downwards. The tape was fixed in a loop round the fourth toe, passed double over the second and third toes, and then surrounded the great toe. The little apparatus is easily made by the patient.

So much for the scientific treatment of the complaint. But there is a class of cases, chiefly among hospital patients, in which imperfect intelligence and want of cleanliness nullify our efforts. The patient is probably the breadwinner of the family, and he is driven out of all patience by the constant worry of his petty complaint. He wants to get well at once and permanently, and will be trifled with no longer with pressure by cork, tin, or lead, or with burning or paring or scraping. Such patients have usually flat-foot; but the endless worry of the morning pad is beyond their endurance. For all these I remove the matrix as well as the nail, and scrape the periosteum off the bone. The operation is a simple

one, and by the exercise of a little dexterity may be done on both feet while the patient is under the influence of nitrous oxide gas. The knife grazing the bone is carried rapidly round the flesh on the right side of the nail, and by a change of the same movement passes under the nail down to the bone, and lifts away nail, matrix, and suppurating flesh. A piece of boracic lint is wrapped tightly round the toe, and need not be removed for a week. In the meantime the patient may get about. At the end of the week the sore will be smaller than the nail removed, for the healthy tissues have been pressed inwards over the sore. In three weeks the wound is cicatrised over; and most likely in a few weeks more a stunted nail is developed, like that usually seen on the fifth toe, from which no trouble ever arises.

The sore from this operation heals as quickly as that from simple avulsion of the toe-nail; and there is no young and tender nail to be guided in its growth, and perhaps cause the old trouble in its maturity. This simple cicatrisation is altogether a more rapid and less painful process than the growing of a young nail.

If the patient is not anxious to have a handsome nail on his toe, I never hesitate to let him have this mode of cure. A toe-nail is not much loss. In human beings, especially in the booted, and more particularly in the large mass of humanity who are not and never will be sculptors' models, the toe-nail is neither a useful nor an ornamental appendage. We do not scratch with it; and as a thing of beauty the thickened, stunted, brown epidermic growth usually seen on the great toe of civilized beings can easily be dispensed with. The loss of it, at its best, can never be a great one; and when it is ingrowing its loss is a gain.

As a plan of treatment I believe that mere avulsion of the toe-nail ought to be abolished from surgery. It gives much discomfort during the growth of the young nail, does not attack the true cause of the mischief, and is most uncertain as a mode of cure. The toe-nail is useless; a firm cicatrix is innocuous, and not more unsightly than the ordinary toe-nail of the adult. The removal of the matrix and the scraping of the bone is certain to cure the very worst case of the disease; and therefore, on these grounds, I confidently recommend the proceeding. Scientifically, its position is as a last resort; practically, it may often be the patient's first relief, and the relief will be permanent.

Clinical Records.

SHORT REPORTS OF TWELVE CASES OF LIGATURE OF SOME OF THE MAIN ARTERIES occurring during the past few months at the Bristol Royal Infirmary. By J. PAUL BUSH, House Surgeon.

LIGATURE OF THE COMMON CAROTID.

W. J., æt. 65, collier. Under Mr. Dowson. Admitted for a hard tumour occupying the left submaxillary region. Patient had noticed it for four years; it had been gradually increasing in size ever since, causing much pain for last twelve months. On admission tumour was the size of a small hen's egg, and was evidently in close relation with the vessels of the neck, and was not attached to the jaw.

Ten days after admission the tumour was removed by the knife (and found on microscopic examination to be a sarcoma); severe hæmorrhage followed, from the divided vessels running into the growth, which necessitated ligature of the common carotid (above the omo-hyoid muscle, with a catgut ligature and the usual antiseptic precautions); the hæmorrhage then ceased; the patient made a rapid recovery, the wound was healed in three weeks, and the patient allowed up.

Five weeks after the operation acute panophthalmitis of the left eye set in, and the temperature rose to 101° without any previous symptoms; during the next five days the eye became completely disorganized; on the forty-second day after ligature of the carotid the patient

suddenly lost the power of motion in the right arm (only), and at the same time became aphasic. Consciousness was considerably impaired, and there were involuntary evacuations; the temperature at this time ranging from 104°—105°. The patient remained much in this condition for four weeks, but was perhaps becoming rather more conscious, and had some slight control over his evacuations, when he was removed by his friends (ten weeks after ligature of the common carotid).

He died about one week after being taken away, his friends say quite suddenly.

LIGATURE OF THE COMMON CAROTID.

W. T., æt. 52. Under Mr. Prichard. Admitted for tumour at back of left orbit; this had been noticed for five months. On admission sight was completely gone in the left eye, the globe was protruding, and over the left temporal region was a soft swelling. One week after admission the eye was removed and an incision made over the temporal region, when a large mass of soft tissue was found (this proved to be round-celled sarcoma under the microscope); this growth appeared to be continuous with the mass at the back of the orbit; an attempt was made to remove it. There was severe hæmorrhage; pressure, the cautery and perchloride of iron were applied; oozing continued for twenty-four hours, when the common carotid was tied with a thick catgut ligature above the omo-hyoid muscle. The hæmorrhage ceased, but the patient died eight hours after the operation; the coma which came on immediately after the first operation steadily increasing up to the time of death. The *post mortem* examination showed the whole of left orbital and temporal regions invaded with sarcoma.

LIGATURE OF THE COMMON CAROTID.

C. V., æt. 63. Under Mr. Cross. Patient admitted for epithelioma of the orbital region. Eight years ago a small ulcer appeared on the lower lid. This was removed; the ulceration soon recurred, and rapidly spread to the globe of the eye, nose and cheek.

On admission the whole of the upper half of the left side of the face was replaced by a deep excavation; this had implicated the whole of the orbit, had spread into the nose and nearly down to the angle of the mouth and back to the ear, exposing the bones. Patient had had great pain, which occurred at intervals, and was always relieved by the severe hæmorrhage which for the past three or four months had come on every two or three days.

Four weeks after admission, during which time the pain and hæmorrhage increased in spite of various local applications, the left common carotid was tied at the omo-hyoid muscle with a thick catgut ligature; antiseptics, horse-hair drainage. The temperature never rose above 99°, and there were no cerebral symptoms whatever; and in eight days the wound was healed and the sutures removed; and in three weeks the patient was allowed to sit up, and was sent home at the end of the fourth week.

The ligature of the common carotid seems to have had little or no effect either on the progress of the growth or on the hæmorrhage. About two weeks after going out the hæmorrhage and pain steadily increased, but the patient was able to walk about, and he retained all his faculties up to the day of his death, four months after the operation.

LIGATURE OF THE COMMON CAROTID.

H. H., æt. 68. Under Mr. Cross. Six months before admission patient noticed a swelling in the right side of the forehead, and for some weeks before this she had had severe pain in the right eye and side of face. Patient had been getting about up to a week before admission, when her present condition came on.

On admission patient was semi-conscious, occasionally complaining of pain in the head; there was partial hemiplegia of the left side of the body; implicating the right temporal and right half of the frontal bone, and extending to below the zygoma, was a soft tumour pulsating synchronously with the temporal artery; no bruit could be heard; pressure on the temporal or carotid did not diminish the size of the tumour, but the pulsation was lessened, but did not cease entirely; the right eye was pushed considerably forwards, the conjunctiva non-sensitive; both pupils acted very slowly to light. The day after admission, as the coma was increasing, the common carotid was tied antiseptically with a catgut ligature above the omo-hyoid muscle; the tumour was very slightly diminished in size, but the coma, &c. did not alter. Two days after the operation the unconsciousness increased slowly, and the patient died five days after the operation.

Post mortem examination: The tumour was found to be a small round-celled sarcoma of the skull, pressing on the brain but not invading the dura mater; there were numerous large vessels running directly into the growth.

FEMORAL ANEURISM. LIGATURE OF FEMORAL.

T. T., æt. 31, labourer. Under Mr. Board. Fifteen months before admission patient first felt discomfort in

the lower and inner part of the right thigh, and about two months ago he found a small swelling in this position, which had steadily increased to its present size. On admission he had an ovoid swelling in the lower quarter of the right thigh; over its posterior and inner aspect this swelling was $4\frac{1}{2}$ inches long and $3\frac{3}{4}$ inches broad; it pulsated visibly; this pulsation was completely controlled by pressure on the femoral above, but not by flexion of the knee or thigh; there was a double bruit to be heard over the swelling and up the femoral; veins were much enlarged; there was no œdema of the limb. Posterior tibial could be felt pulsating less distinctly than in the left leg; there was no evidence of arterial disease elsewhere; no history of syphilis or rheumatism; but the patient had been a hard drinker all his life.

One week after admission the aneurism was increasing in size, and the patient was in more pain.

Digital compression of femoral for six hours; no result; temperature rose to 102° and continued high for three days; compression was then again applied for four hours, with no result. One week after this the femoral was ligatured in Scarpa's triangle with a chromicised catgut ligature, and with the usual antiseptic precautions; the pulsation ceased entirely. The wound healed rapidly, and the patient was up in one month, and went out soon after this. Patient was seen two weeks afterwards, when he could use his leg fairly well.

Patient was re-admitted two years after this, with the following history: Remained well till six weeks ago, since which time he has had severe pains, in the right leg and foot, which has ever since he went out been much colder than the left leg. Two days before admission was quite suddenly seized with very severe pain in the calf of

right leg. The right foot on admission was blue and cold, and over the toes were several bullæ; the pain was steadily increasing, and was completely confined to the portion of skin supplied by the internal saphenous nerve; over this area there was also diminished perception of localization. In the course of two weeks the skin over the toes dried up and peeled off, leaving a few points of extravasation; these soon were absorbed, and the toes then slowly regained their normal colour, but never their proper temperature, neither was sensation, properly re-established. The patient was allowed up, and the condition of the foot did not alter; he went home seven weeks after admission, being able to walk well without pain.

ANEURISM OF FEMORAL. LIGATURE OF FEMORAL.

J. C., æt. 33, hawker. Under Mr. Board. Patient admitted for a pulsating tumour in the lower third of thigh; noticed for the first time only three weeks before admission. There was a distinct history of a hard sore, followed by all the secondary symptoms, and tertiary ulcerations and necrosis of tibiæ.

On admission patient was in a very low state, and covered with rupia. In the lower third of Hunter's canal was an elastic swelling the size of a hen's egg, which had an expansile pulsation and bruit, which ceased on pressure applied to the femoral. After three weeks' treatment patient was gradually getting worse, and the aneurism was increasing in size; the femoral was exposed at the apex of Scarpa's triangle, and tied antiseptically with one of Barwell's flat ox-aorta ligatures. Venous hæmorrhage occurred at the time of the operation, due to a wound of the vein, but this ceased entirely when pres-

sure was applied. The day after the operation no pulsation could be made out, and the aneurism was greatly diminished in size; limb, warm, and a good colour; patient says he is in much less pain.

On the second day the patient's general condition was not so good, and he gradually sank, and died on the fifth day after ligature was applied. *Post mortem:* The aneurism was found filled with soft fibrine, and there was very extensive disease of all the internal organs. The spleen was enormously enlarged.

ANEURISM OF POPLITEAL. LIGATURE OF FEMORAL.

R. B., æt. 32, miner. Under Mr. Greig Smith. Admitted for a pulsating swelling in right popliteal space. This had only been noticed for three weeks, and patient had only been for one week off work on account of the pain in knee. On admission right knee was slightly flexed, and could not be extended without much pain; there was slight effusion into joint, with marked œdema and dilated veins of leg and ankle. The anterior and posterior tibial arteries could be felt pulsating less plainly than in opposite leg. Filling up the whole of the popliteal space was a large elastic tumour, with expansile pulsation (stopped by compression of the femoral), and very distinct thrill and loud rasping murmur. One week after admission there was no improvement with the rest, &c. Digital compression was applied on two occasions, in all for eighteen hours, the only effect being a slight temporary hardening of the aneurism.

Three weeks after admission the femoral was ligatured at the apex of Scarpa's triangle with a catgut ligature and the usual antiseptic precautions. Pulsation imme-

diately ceased, but was again noticed slightly on the second day. At the end of the third day no pulsation could be made out. The wound healed by first intension without any complications. In ten days there only remained some slight thickening round the original seat of the aneurism. Three weeks after the operation the patient was up, and ten days after this went out cured. Reported himself, six months after going out, as quite cured and doing his ordinary work.

POPLITEAL ANEURISM. LIGATURE OF THE FEMORAL.

C. C., æt. 44, ex-soldier. Under Mr. Cross. Patient had served in the Hussars all his life. History of syphilis twenty years ago. History of pain and stiffness in knee for three months. Patient noticed the swelling one month before admission, when he was doing a good deal of extra work in the saddle. On admission, in the upper portion of the popliteal space there was a hard swelling the size of a cricket-ball, with expansile pulsation, thrill and rough bruit, which ceased on compressing the femoral; the knee was much flexed and stiff; the foot and leg were œdematous, and there was much pain in the leg and toes; the patient was in the habit of taking morphia frequently; there was a mitral systolic bruit, and the brachial arteries were hard and tortuous. Two days after admission Esmarch's bandage was applied without result, followed by compression by a shot-bag placed over the femoral in Scarpa's triangle for thirty-six hours, also with no result. After two weeks' rest with splint, &c., the aneurism was still rapidly increasing in size, the skin over it was dusky, and the œdema and venous congestion of the foot were increasing. The femoral was ligatured antiseptically at

the apex of Scarpa's triangle with a catgut ligature; no drainage. Next day there was slight pulsation noticed in the aneurism, but none after this. Ten days after the operation the aneurism was soft and flaccid, but no pulsation; the foot still remained cold and œdematous, but the patient's general condition was much improved. Four weeks after the operation the aneurismal sac showed no tendency to contract. An antiseptic incision was made into the tumour, which was found to be full of recent black blood-clot, surrounded by a small portion of laminated fibrine not completely decolourised; the whole of this was turned out and the cavity drained. Four weeks after this a patch of gangrene showed on the little toe; the tumour was then much smaller, but still discharging slightly. Three weeks after this the wound was completely healed, and there was only some slight thickening left in the popliteal space, the knee being flexed almost to a right angle. An attempt was made to straighten the limb by a Macintyre splint; this increased the slough on the little toe, and some superficial ulceration of the second toe and outer side of the foot followed.

Patient went out three months and a half after admission, and was seen some months afterwards, when he had lost the two toes, but was walking about with a bent and stiff knee.

TRAUMATIC ANEURISM OF RADIAL. LIGATURE OF BRACHIAL.

W. S., æt. 38, sugar boiler. Under Mr. Prichard. On admission patient was suffering from a punctured wound at the centre of the bend of the right elbow. A probe could be passed in three or four inches, and the point could be felt on the outer side of the head of the radius,

immediately beneath the skin. There had evidently been severe hæmorrhage before admission, and there was a good deal of extravasated blood in front of the elbow-joint. Both radial and ulnar arteries could be felt pulsating slightly. The limb was put on a splint, and no further hæmorrhage occurred. On the third day after admission the temperature had risen to 101°; the arm was swollen and very painful; the swelling in front of the elbow was much increased and pulsating; the radial and ulnar arteries could not be felt. A free incision was made over the mass of extravasated blood, but the bleeding point (? in the upper tenth of the radial, as the blood was seen oozing freely up from beneath the supinator longus) could not be found. The brachial was ligatured with a catgut ligature immediately above its bifurcation, and the hæmorrhage ceased. The temperature was normal by the third day, and the wound healed slowly by granulation; and the patient went out cured in eight weeks. Patient showed himself one month after this, when there was no stiffness of joint, and no pain or coldness of the arm or hand.

TRAUMATIC ANEURISM AND LIGATURE OF RADIAL.

P. R., æt. 19. Under Mr. Prichard. History was, five weeks before admission the patient sustained a punctured wound at the junction of the lower and middle third of the right forearm. There was profuse hæmorrhage at the time of the accident; no vessel was tied, the wound was sewn up, and no bleeding occurred again; the wound healed by first intention, and the patient was working four days after his accident. Three weeks after this the patient noticed a slight swelling round the seat of the

original injury; since this the swelling has steadily increased in size up to the time of admission.

On admission there was a tumour the size of a pigeon's egg, situated on the anterior radial aspect at the junction of the middle and lower third of the right forearm, presenting the usual physical signs of an aneurism. On compressing the radial above, the tumour became soft, and could be emptied, but refilled slowly unless pressure was also applied to the ulnar.

One week after admission the tumour was considerably larger. The radial was ligatured antiseptically with a catgut ligature above and below the aneurism. (On drawing the upper ligature tight pulsation continued till a ligature was also applied below.) The wounds healed by granulation. One month after the operation the tumour was still present, though now as a hard, solid mass the size of a cob nut, and gave rise to some pain. An incision was made into it, and a firm blood-clot turned out. The wound healed in ten days, and the patient went out cured. The patient has since been seen, and was then quite cured, and doing the hard manual work of a blacksmith without any further trouble.

TRAUMATIC ANEURISM OF TEMPORAL.

W. H., æt. 6. Under Mr. Greig Smith. Patient was run over by a heavy cart, and the whole of the upper portion of the scalp was torn off; there was no hæmorrhage at the time of the accident.

Two weeks after the injury an aneurism, the size of a small cob nut, was noticed in the course of the left temporal, about half an inch above the external auditory meatus. Three days after this, during a fit of coughing, the aneurism ruptured, and there was severe hæmorrhage;

the wound was enlarged and the two ends of the vessel found, the clot turned out, and a catgut ligature applied above and below the seat of the aneurism; hæmorrhage ceased at once, and the wound healed rapidly. Some necrosis of the skull followed the original injury.

TRAUMATIC ANEURISM OF TEMPORAL.

A. H., æt. 12. Under Mr. Greig Smith. One month before admission patient sustained a contused wound of the scalp. Since the injury there has been a tumour steadily increasing in size, which has bled freely every few days since injury.

On admission, situated above the right ear and in the course of the posterior temporal artery is a mass of vascular tissue, pulsating, the size of a large hazel-nut. This tumour was removed by the knife, and a large artery running into this was secured by a hare-lip pin. Wound healed in a week. No return of the trouble.

CASE OF CEREBRAL ABSCESS FOLLOWING SLIGHT INJURY.

By A. N. Godby Gibbs, House Surgeon, Children's Hospital, Bristol.

George Hooper, æt. 7, was admitted into the Children's Hospital on Thursday, Jan. 3rd, 1884.

History.—Until three weeks before admission was a very healthy child. On Dec. 13th, three weeks ago, whilst at play in the street, he ran violently against a piece of iron on a trolly, causing a small contused wound on the upper part of the forehead, a little to the left of the middle line. He was not stunned, nor did he vomit, but ran home, and then with his father walked up to the Infirmary, where the wound was dressed; and as he

showed no signs of serious mischief to the skull or brain, was sent home to attend as an out-patient. Except for slight headache, he seemed to do very well for a fortnight after the accident; was quite lively, seemed in his usual health, and even went to school. The wound nearly healed. On Saturday, Dec. 29th (sixteen days after the accident and five before admission into the Hospital), he began to vomit, and continued to do so at frequent intervals till he was admitted: at this time also he complained of severe headache. He had no convulsions or paralysis, had not squinted, and was quite conscious, except for slight wandering at night.

Condition on admission (twenty-one days after accident). —The body was somewhat emaciated. The boy had a pinched look, and his eyes were heavy. He was conscious, but rather apathetic, answering slowly. There was no paralysis nor squinting. He was vomiting bilious fluid at intervals, and complained of severe headache. The pupils were rather contracted, equal, and sluggish. The tongue was very furred. Temperature 99°; pulse 64. The wound on the forehead was scabbed over and almost healed; there was no inflammation of the surrounding skin.

Progress.—Jan. 6th (three days after admission). The vomiting had become less frequent; he was conscious, but dozed a good deal, screaming out occasionally in his sleep, and was very impatient if the nurse did not go to him the moment he called. The wound was suppurating a little.

Jan. 10th (one week after admission). He had improved a great deal. There was scarcely any headache. The vomiting had ceased. The boy was quite bright and lively, wanting to sit up.

Jan. 12th (the day before his death). Vomiting reappeared, as also the drowsiness, though he was quite conscious, and free from paralysis and convulsions. Temperature, 98·6°.

Jan. 13th. After a quiet night, seemed no worse early in the morning, when he talked to the nurse quite sensibly; he then had full power in his limbs. At 9 a.m. he began to vomit, with a good deal of straining; after this he got very faint, but revived after some brandy. At 10 a.m. he had the first convulsion since the accident; others followed rapidly, he became comatose, and died at 3 p.m. The convulsions were general, and affected both sides equally. There was no squinting.

Post-mortem Examination.—There was a partly-healed wound, about $\frac{3}{4} \times \frac{1}{2}$ inch, near centre of forehead. There was no effusion of blood round. On removing the scalp the bone at the seat of injury was found stripped of periosteum and rather porous. There was no fracture. The skull-cap, which was rather thin, having been removed, some lymph was seen effused on the surface of the dura mater, at a point corresponding with the external wound, and the inner surface of the bone was also inflamed. The whole thickness of the bone would probably have become necrosed. After the dura mater had been removed, the surface of both hemispheres looked healthy. In the anterior and upper part of the left hemisphere there was a large abscess containing yellow pus without admixture of blood. The abscess cavity was as large as a Tangerine orange. The wall was slightly thickened, and at the upper part only about a quarter of an inch of brain substance remained. The rest of the brain and other organs were healthy. No fracture of the base of the skull was found.

Remarks.—1. The boy for sixteen days after the injury went about as usual, and showed no sign of serious brain mischief; he even went to school.

2. After the first onset of symptoms he improved so much as to seem in a fair way to recovery, and only became very bad a few hours before death.

3. The temperature was never above 99°.

4. His mental condition was perfectly clear, his speech perfect twelve hours before death, and he had up to then had no paralysis or convulsion, though at that time fully one-fourth of the left hemisphere of the cerebrum must have been transformed into an abscess.

This case, I think, is interesting as showing that severe destructive brain mischief, after an apparently slight injury, may be proceeding for a considerable time without giving rise to symptoms; also that such mischief may be at some distance from the surface of the brain, and be covered by healthy brain tissue. This last point is especially noteworthy with reference to possible operative interference.

CASE OF MALIGNANT PUSTULE.

By Lionel A. Weatherly, M.D., Portishead.

J. B., aged 18, a strong, healthy lad, came to see me on the morning of Friday, March 7th, about a slight swelling under the angle of his jaw, on the left side. He said he felt quite well in himself. In the centre of this swelling, which was more a simple puffiness, I noticed a small dark pustule about the size of half a threepenny-piece, round which were four small vesicles and an area of redness extending about a quarter of an inch, with a

somewhat brawny feel on touching it. He said he had had a boil on his neck some few weeks before, which had discharged freely and got quite well; that he noticed the present pustule, which he called a "cat's-boil," on Tuesday, March 4th; that it had got the dark colour, and the vesicles had made their appearance, since Thursday, March 6th. He had been out of work (he was a dock labourer, and was sometimes employed in the sheds turning the grain) for some days, and had had nothing whatever to do among animals. On questioning him further on this point, I found that he had stood for some little time in a slaughter-house on the day previous, Thursday, March 6th, on which day it will be noticed that the dark colour and vesicles were first seen. He had had no rigor, and persisted in saying he felt quite well.

I sent him home at once, and ordered a large poultice to be applied. Within an hour I called at his house in order to make a free incision. In this short space of time the swelling had visibly increased. I made a free cross-incision through the pustule and hard brawny tissues, applied pure carbolic acid, four leeches in the neighbourhood of the pustule, and large poultices. I put him on a mixture of quinine and iron, and ordered him to have plenty of nourishment and stimulants.

On Saturday, March 8th, the swelling was still increasing down the front of his chest, down back and whole of the left side of his face. His constitutional symptoms were good; the leeches had taken a large quantity of blood; the pustule looked very dark, but showed no signs of sloughing; the vesicles had increased in size and number, but this was probably the result of the carbolic acid; his temperature was normal. On

Sunday, March 9th, I learnt he had passed a very restless night. The œdema had greatly increased in the neck, particularly in front, and so much so that from his difficulty in breathing I feared he might be suffocated from pressure on the trachea. Erysipelatous inflammation had set in, and reached as high as the eyebrow and as low as the clavicle. I painted a broad band of iodine outside the area of this, and ordered the same to be done night and morning. His pulse was feeble; but he complained of no pain, and said he did not feel very ill in himself. Temperature normal.

Monday, March 9th. Erysipelatous inflammation better, and swelling across front of the neck not quite so great; pustule looking very dark, and showing some sign of sloughing; area of brawniness increased. He had had a bad night, and was slightly delirious.

Tuesday, March 10th. I found him much worse. He had been very delirious through the night; the area of brawniness had again increased, and there was more evidence of sloughing. Mr. Greig Smith saw him with me at four o'clock, when he was in a semi-comatose state, and he died in this state at 7.30 p.m.

No *post mortem* examination was allowed, I am sorry to say. On Monday I sent some of the blood from the neighbourhood of the pustule to Dr. Shingleton Smith and Mr. Greig Smith, as they had kindly promised to examine it microscopically for me, and the result of their examination showed undoubted bacillus anthracis.

Remarks.—From the first moment I saw this case I felt that I had to deal with one of malignant pustule, and I venture to think that its result and the microscopical examination of the blood prove that I was right. I find that only two cases of this disease are recorded in the

Pathological Society's Report for last year—one by Mr. Davies Colley, and one by Mr. Bryant; but Mr. Colley mentions that they had had twenty-three cases during the past eleven years at Guy's, four of which had been received during the three months immediately preceding his paper.

In Mr. Colley's case the patient had been struck in the face and scratched by a hide; he had become restless, and had had a rigor. On admission the man was very ill in himself, and there was a bright red swelling on the cheek, with an abrupt edge and a dark slough in the centre. The tumour was at once excised, and the patient got quite well.

In Mr. Bryant's case the tumour was also excised, but the patient died collapsed in ten hours.

In both these cases bacilli were found in the serum of the tumours, in the urine, fæces, and sweat; but Mr. Colley makes a point of the fact that micrococci only were found in the blood. In Mr. Colley's case there was no distinct ring of vesicles, and the constitutional symptoms came on early.

With regard to my case, the peculiarities seem to be the following:—(1) One cannot trace the cause definitely, although one may fairly surmise that he might have had an ordinary small boil up till Thursday, which might in some way have been inoculated during his short stay in the slaughter-house, where there were hides of animals lying. (2) The absence of rigor, and the lateness of distinct constitutional symptoms. (3) The absence of the usual prominent condition of sloughing.

It is much to be regretted that no *post mortem* examination could be made in this case. It would have been interesting to have examined the internal organs, and seen

whether or not they were affected by the pustule, as in the majority of such cases; and after reading Mr. Colley's case I cannot but wish that I had at once excised the tumour, but I thought that free incision and the application of the pure carbolic acid would have sufficed.

CASE OF TUMOUR (COLUMNAR PAPILLOMA) IN FOURTH VENTRICLE OF BRAIN, WITH HYDROCEPHALUS. By J. TAYLOR, M.R.C.S., Bristol.

The patient, a strong, healthy-looking boy aged eighteen was under my observation for nearly three years. He was brought to me on account of his suffering from constant headache, which was supposed to be due to liver derangement. On questioning him, however, I found his sight was becoming dim, and his walk unsteady. The only history of injury was that at school he had received a blow over the side of the head with a cane, which caused discoloration behind the ear. He also complained of a curious noise in his head, which the bystanders could hear, and I myself heard it on one occasion. It could be heard some little distance from the head, and was like an exaggerated venous hum, its point of greatest intensity being over the occipital bone. It was not a constant symptom, and could only be heard at times. It passed off after a few months, and did not recur again.

The boy during the next two years went gradually down hill, getting more and more blind, and his walk more and more unsteady, till finally he couldn't walk without assistance. He developed epileptic attacks, and

for a short time passed urine and fæces involuntarily. During last summer he suddenly began to improve. He had not so much pain in his head, and regained the power to a certain extent over his legs, so much so that he could walk—and walk by himself—for hours at a time. His sight did not get much better, and on examining his discs there was optic neuritis.

At the beginning of the year he began to go back again, and on January 30th the following notes were taken: No neurotic family history. Father, brothers and sisters all living. He is very stout, having got much stouter during illness. Has grown a great deal lately. Ruddy complexion. The circulation seems languid; hands are cold and red. Lips red, almost cyanosed. Teeth not syphilitic. Tongue natural, but is drawn to the left side on protrusion. No difficulty in swallowing. Digestion good. Bowels are constipated. Pulse, 82. No heart or lung disease. No œdema. There is a difficulty in passing water, or rather in commencing. No pain. Goes a long time without micturating. Urine loaded with lithates. Specific gravity, 1030. No sugar; *i.e.*, no darkening on boiling with liq. potassæ. (I regret not making a more careful examination for sugar.) No albumen. Priapism frequent.

Nervous System.—Great pain in head, especially at the back; the slightest movement increases it, such as opening the mouth. It does not keep him awake, but he wakes with it in the morning. No anæsthesia. No paralysis, with the exception of the tongue being drawn rather to the left side on protrusion. The expression of the face is heavy and dull, but there is no facial paralysis. Sight.—Can tell light from darkness; cannot distinguish persons. He holds his head back, and looks down.

Hearing normal. Taste and smell normal. The patellar reflex is present in each leg. On walking, gait is ataxic; *i.e.*, feet flourish in the air, and come down flat. Cannot walk without support. Falls forward on standing with his heels together and eyes shut. His intellect seems perfect.

February 3rd. Is in bed. Has had several attacks during the night. His face gets red, body and limbs stiff, no twitching, and perspires freely. (I did not see one of these attacks, but this is what was told me.) Has vomited several times, apparently cerebral vomiting. Pulse, 84; temperature, 99°.

His position in bed is always the same; he lies on his right side, crumped up, and does not move. There seems to be no paralysis of the limbs, as he can move them when made to do so. He constantly asks to have his head moved to relieve the pain; and if he sits up at all in bed his head falls forward, as if too heavy.

Feb. 7th. Has had three faint attacks, different from usual. I was told, "His breath gets short and difficult to recover, and his face pale."

Feb. 8th. Several faint attacks.

Feb. 9th. He died in one of the faint attacks.

Post-mortem.—Forty hours after death: Rigor mortis well marked. Only the head was examined. The bones of the skull seemed thinner than usual. Dura mater congested. No fluid in subarachnoid space. Vessels of brain generally were full. When the dura mater was cut through, the brain fell backward as if very heavy, and in so doing tore through an adhesion between the under surface of the right cerebral hemisphere and the orbital plate. The convolutions were flattened. After the brain was removed, it felt like a large fluctuating sac, and on

the slightest pressure fluid escaped through the tear in the front part of the brain. On passing the finger through this aperture, it was passed as far as it could go into the cavity of the right ventricle. At the base of the brain there was nothing special to be seen beyond the general softness of the brain substance. The optic nerves were softened. On exposing the cavities of the ventricles they were found enormously dilated and full of fluid. On a rough estimate, a quart or three pints of fluid must have escaped. There was free communication between the ventricles, through an opening in the septum lucidum as big as half-a-crown. On cutting down to the third ventricle, a small tumour was discovered filling the cavity of the third and fourth ventricles, which apparently stopped short in the medulla, though it was not certain that some of it was not cut off in cutting through the medulla before the brain was removed. On microscopical examination the tumour is found to be a columnar papilloma. There is a basis of well-formed connective tissue, which forms but a small proportion of the whole bulk of the tumour. It contains here and there a capillary vessel. Upon this basis is arranged the layer of columnar epithelium; and the remainder of the growth consists of more or less ill-developed, rounded epithelial cells, heaped up between the papillæ. This portion constitutes the mass of the tumour.

This case might be called one of hydrocephalus, the existing cause being a tumour in the third and fourth ventricles. As Dr. Skerritt (who was present at the *post-mortem*) pointed out, that the tumour was situated over the cerebro-spinal opening; closure of which is stated by Hilton, in his *Rest and Pain*, to be a cause of hydrocephalus. I think, however, that, in addition to

this, there must have been some pressure on the sinuses of the brain, which would have assisted in causing the dropsy, as the venous hum present in the earlier stages of the case must have been caused by some pressure on the blood-vessels. I think it is curious, looking at the site of the tumour, that the only cranial nerves affected were the optic, as shown by the blindness; the vagus, as shown by the mode of death; and the hypoglossal, as shown by the paralysis of the tongue.

Notes on Books.

The Treatment of Backward Displacements of the Uterus and of Prolapsus Uteri by the new method of Shortening the Round Ligaments. By W. ALEXANDER, M.D. Pp. 71. London: J. & A. CHURCHILL. 1884.

Two things strike us with regard to this operation: first, that it is a very ingenious one; secondly, that, in spite of the wide publicity given to it, it has been curiously neglected by our leading men in obstetric surgery. Is this apparent neglect only a justifiable distrust? We fear that it is, and that this operation of Dr. Alexander's, like his other one of ligaturing the vertebral arteries for epilepsy, will not command the universal and enthusiastic support of the profession.

It is doubtful if Dr. Alexander's views as to the dynamics of uterine displacements would be accepted by the most eminent gynæcologists; but this we should not lay much stress on if his operative results were favourable. These must speak for themselves. Twenty-two cases are recorded, and success is claimed for all of them. Let us glance at a few of them. Case 1 is for prolapse and cystocele. The

prolapse was cured; "the position of the cystocele was scarcely changed." In case 2 "the results are the same as in the preceding case." In case 4 he failed to catch up one ligament properly; but got a good result, except that the patient suffered as before from epilepsy. Case 5 was an epileptic; ligature of both vertebrals failed to cure her, but shortening of the round ligaments for retroversion did. Case 6 was in bed six weeks after operation for prolapse, and was cured. Case 8 was a doubtful success, because of uterine adhesions. Case 9 was more than cured, for she was left "with slight anteversion and prolapse." Cases 12 and 13 had good immediate results, but had not returned to satisfy him as to the permanency of their cure. In case 15 he used a galvanic stem pessary for retroversion and retroflexion during the operative treatment; "but the ligaments had evidently yielded," and at the end the position was improved. She had "fainting fits," which were not improved; but he thinks "that the epilepsy from which she now suffers would not be cured by removal of all the uterine organs." So do we. Case 16 had also a galvanic stem pessary. Case 19, aged 22, with retroversion, was in bed three weeks after operation with a Hodge's pessary in the vagina, which was left in about two months more. Case 20 was a puny woman, "subject to dyspeptic symptoms and miserable forebodings." For retroversion and some prolapse she was operated on on September 6th, and had a stem pessary and a Hodge inserted. On February 20th the uterus was in position; but "she is still puny and dyspeptic, but is improving under the idea that her uterine organs are all right." We have seen how the operation may cure epilepsy; we confess we did not expect it to cure puniness and dyspepsia. "In the next two cases I endeavoured to remove the ovaries by pulling them out in the groins by the round ligaments. The first case shows that where adhesions do not exist it can readily be done; but even then it is inferior to abdominal section. In the second case, the ovaries being adherent, the operation failed."

Supposing that all the others were complete successes, we doubt if each of those we have quoted would be so considered. Looking at the operation as a whole, we cannot fail to be struck with the length of time the patient is under treatment in bed; the amount of suppuration that arises from the wounds; and the frequency with which adjuvant pessaries, intra-uterine or vaginal, are used. Not always, either, is it possible to put the uterus in position; for a ligament may refuse to be shortened, or a uterus may refuse to be straightened.

We think that Dr. Alexander has not done himself or his operation justice in this work. The scientific basis of the operation is not presented with that amount of care and exactitude which the recent abundant labours of original workers on the anatomy of the pelvic floor have rendered possible; and the cases embodying the practical results are not narrated in a way to satisfy the clinician. In spite of this, we believe that Dr. Alexander's operation has a future before it, but that its area ought to be limited to a very circumscribed class of cases. Whether or not it is destined to take its place among the standard operations of surgery, its conception and execution will be a lasting honour to one of the most original and enterprising of our provincial surgeons.

An Index of Surgery. By C. B. KEETLEY, F.R.C.S. Pp. 494. Second Edition. London: SMITH, ELDER AND CO. 1884.

We expect a book of this sort, designed for the senior student who is desirous of passing an examination, to be a heterogeneous hash of disjecta membra lopped off the various monuments of surgical literature, and served up crude, incoherent, and unelaborated under the author's labels as genuine intellectual pabulum. But we find something very different in this case. Here we have honest work of a high order—independent, laborious, and trustworthy. And it is more than an index, it is a dictionary, and a by no means incomplete one. The language is much abbreviated in most places; but here and there, especially where some subject peculiarly his own is treated, the author expands into flowing and pithy sentences, which almost make us wish that the whole work had been so written.

The work is singularly equal throughout. There is very little to be found fault with, and much to be commended. Among the former we would instance the mode of administering ether which he recommends; viz., on a towel folded conically, with a sponge at the bottom. Surely fracture of the neck of the humerus is not the only or even the chief surgical lesion which is liable to be confounded with dislocation of the shoulder-joint, and fatty embolism is not confined to cases of *compound* fracture. On the other side, the most striking excellence of the work is, in our opinion, the surprising manner in which it is kept up to date. Not only have we

excellent descriptions of such subjects of recent interest as The Localization of Cerebral Injuries; Wiring of the Patella; Microscopic Organisms; Excision of the Rectum; The Modern Operative Treatment for Radical Cure of Hernia and so forth; but we find frequent references to papers bearing on many of the subjects, which must have appeared as the work was passing through the press. No better evidence of the vitality of the work could be adduced than the frequent appearance of such references to modern papers, and the liberal-minded appreciation with which the author has studied them. There is none of the affectation of the mere bibliographer about this. The author quotes a paper because he has read it, and appreciated it, and found it good; papers of another sort he ignores.

The author in this way has succeeded in building up a work which is unique of its kind. Nowhere else in the English language have we so much surgical truth presented in so small a compass, so well arranged, so thoroughly up to date, and withal so readable. We heartily commend it to the perusal of our readers.

The Leamington Waters. By F. W. SMITH, M.D. Pp. 61. London: H. K. LEWIS. 1884.

A pleasantly written, unassuming little work this is. It contains all that a medical man need know as to the climatology of Leamington, and the sort of diseases which derive most benefit from treatment there. We agree with the author in the belief that we do not make the most of the healing properties of our home mineral waters; and we hope that his work may be the means of making more widely known the undoubted virtues of the Leamington Spa.

Medical Extracts.

The action of Respirators in the treatment of Lung Diseases.

M. Moeller sums up a paper on this subject as follows:—

1. The degree of temperature of the inspired air is of no importance to the respiratory organs, whether they be healthy or diseased.

2. It is important to prevent foreign bodies, either organic or inorganic, from penetrating the respiratory organs, especially if those be diseased or threatened with disease.

This indication is particularly important with regard to persons predisposed to tuberculosis; for experience tends to establish the fact that one of the principal ways by which tubercular bacilli are introduced is through the lungs.

3. Great advantages can be derived from the inhaling of substances appropriate to the treatment of respiratory maladies, as well for the tuberculous as for those of a purely inflammatory nature.

He concludes: (*a*) That the respiratory appliances having for their object simply to raise the temperature of the inspired air are absolutely useless.

(*b*) That to render all the services one has a right to expect from those appliances they should be supplied with a layer of wadding, of sponge, or of some other substance able to arrest the inorganic particles and microscopic germs suspended in the atmosphere. In inhaling these substances through an antiseptic liquid you destroy in their passage the microbes suspended in the inspired air, and at the same time act on the diseased respiratory organs; but it is necessary that the inhaler be supplied with valves so arranged that the air exhaled does not follow the same route as the air inhaled.

(*c*) The apparatus of Dr. Graham Brown, of Edinburgh, offers this advantage, that it employs the heat of the exhaled air to raise the temperature of the wadding and of the medicated liquid, which increases the activity of the antiseptic emanations. For this reason this inhaler will be preferable whenever a therapeutic effect is desired.—*Bulletin de l'Académie Royale de Médecine de Belgique*, Tome xvij., No. 11, 1883.

On the changes in the position of the Brain with different attitudes of the Body.

M. J. Luys believes that he has been able to establish the following facts:—

1. The brain is not immovably fixed in the cranial box which surrounds it, as is commonly believed. Over and above the intrinsic movements of expansion and diminution, which are admitted by all, it is endowed with certain proper movements independent of the preceding ones.

2. When the human subject passes successively from the dorsal to the abdominal decubitus the brain follows the movement, and glides evenly from behind forwards simply by the action of gravity, owing to the smooth condition of the serous arachnoid.

3. When the body assumes the vertical position the cerebral mass presses down on itself, and in breaking contact with the parietes of the cranium leaves an empty space, which may be estimated at about six millimetres in thickness in the dead subject, and probably less in the living.

4. When the body is in the lateral decubitus the cerebral mass still obeys the laws of gravitation; the upper lobe presses lightly on its fellow through the falx cerebri, which gives only a partial support.

The material fact of the motility of the brain being admitted, he reviews the various physiological and pathological questions which depend upon it. The mechanical difficulties in the cerebral circulation through the circle of Willis when the body is in a vertical position; the production of mal-de-mer; various forms of headache; nocturnal epilepsy; some forms of heat-fever; and various symptoms which manifest themselves when the body is in a horizontal position, are believed to be satisfactorily explained by the mechanical alteration in the position of the brain. The author further adds a caution, that invalids whose brains are sensitive, or who are the subjects of chronic brain lesions, should abstain as much as possible from travels of all kinds, more especially by rail, which is a potent cause of brain exhaustion.—*Bulletin de l'Académie de Médecine*, 2me. Série, Tome xiij., March, 1884, No. 13.

On a Surgical treatment of Sciatica.

Dr. Comingor, in *The American Practitioner* for February, 1884, relates some striking cases of cure of sciatica by immobilization of the limb in plaster-of-Paris bandage.

The patient is put under chloroform; the limb is put through its normal movements; the soft structures are stretched and massaged; and the bandage is then applied to the whole limb, from the foot upwards, and encircles the pelvis. The patient is permitted to get up on crutches, and the bandage is removed in a fortnight or three weeks. Relief is usually immediate and permanent.

Malignant Pustule communicated by a Fly.

The case was under the care of M. Mollière at the Hôtel Dieu at Lyons.

The patient was bitten on the cheek by a large black fly. In a few hours it began to itch, and next day swelling set in. When admitted to hospital the patient's whole cheek was enormously swollen, and livid in colour. In the centre of the swelling was a small black phlyctena, surrounded by a number of transparent vesicles. There was no fever and no constitutional symptom.

M. Mollière at once destroyed the pustule with the thermo-cautery, and then freely injected the surrounding parts with a 20-per-cent solution of carbolic acid. The affected surface sloughed off in a week, and in three weeks the patient was discharged.

An animal inoculated with the fluids died with all the signs of specific gangrenous infection.—*Gazette des Hôpitaux*, No. 102.

Excision of the Uvula.

M. Tholozan reports, in a communication presented to the Academy of Medicine in Paris, on January the 8th, 1884, that in the Districts of Semnan and Firouz-Kouh, near to Téhéran, excision of the uvula is practised by the Persian barbers on newly-born children as a prophylactic against inflammation of the throat. The custom appears to be an ancient one, dating from at least five or six generations, and limited to two small towns and the surrounding villages. The barbers had never seen any danger or accident arising from the practice, and the inhabitants declared that they had never heard of any accident therefrom. They believed that in this way the children are protected from the danger of suffocation in various diseases of the throat, and that attacks of these maladies are thereby rendered less frequent and less severe.—*Bulletin de l'Académie de Médecine*, 2me. Série, Tome xiij., No. 1.

Physiological Action of Kairin.

To the Société de Biologie, Paris, M. Loych communicates the results of his experiments upon the physiological action of kairin, which he had made in conjunction with M. Brouardel. In his investigations of this substance, M. Hallopeau has not insisted sufficiently on examination into the state of the blood. Under its use, complete cyanosis of the tongue and lips is observed, and after death the lungs are found shrunken, the spleen blackish, &c. It was therefore important to ascertain the action of kairin on the blood.

On examining the gases contained in the blood, there was found, before the administration of kairin, in each 100 c.c. of blood 30 parts of carbonic acid, 14 of oxygen, and 1.5 of nitrogen; after injection of kairin in the same animal, there were 21.9 of carbonic acid, 3.6 of oxygen, and 1.5 of nitrogen. A considerable diminution of the respiratory capacity of the blood occurs therefore from the administration of kairin. From this must be inferred a destruction of hæmoglobin as the explanation of the lowering of the temperature, of the hæmaturia, cyanosis of lips, anæsthesia, and so forth. Its employment would be counter-indicated in typhoid fever, scarlatina, phthisis, &c., all maladies in which it is desirable to seek to increase rather than diminish the oxy-hæmoglobin of the blood.—*Gazette des Hôpitaux*, May 6th, 1884.

Fournier on Hereditary Cerebral Syphilis.

Dr. Fournier, at the Hôpital St. Louis, in a course of lectures calls attention to the cerebral complications of late hereditary syphilis, premising two general ideas: 1st, hereditary cerebral syphilis reproduces almost all the symptoms which are met with in the adult from acquired syphilis; and 2nd, the hereditary form in adolescence, like the acquired in the adult, manifests its commencement in very different ways, but like that also tends to an uniform ending—loss of power, both intellectual and motor. Various though these early symptoms may be, there are some which occur first, and must be noticed specially. Three sets of symptoms, singly or combined, form the beginning of the malady: 1st, convulsive symptoms; 2nd, headaches; 3rd, affections of the intellect.

1st. To treat of the epileptic symptoms first. On account probably of the predisposition of children to convulsive attacks, epileptiform convulsions are of very frequent occurrence in the cerebral syphilis of childhood, and, indeed, are found in all stages of cerebral syphilis of childhood and

adolescence. As an initial symptom it is found in two forms: epilepsy pure and simple, and epilepsy complicated with other cerebral phenomena. The first form is very rare, and presents no features to distinguish it from essential epilepsy. In the complicated form, the most common additional symptoms are, frequent intermittent headaches, noises in the head, vertigo, dimness of sight, dizziness, alteration of character, weakening of the intellect, and various combinations of these symptoms. These initial symptoms may be continued also in two forms: they may retain the purely epileptic form for a greater or less time, without the addition of other phenomena of a different kind; or the initial epilepsy, whether complicated at first or not, is lost in the symptoms of a coarse lesion of the brain.

In the first group, for months or years the patient seems to be the subject of a pure epilepsy only; but after a long time the supervention of other symptoms shows that it is indeed a symptomatic epilepsy. These cases are rare, and are naturally most liable to be mistaken as regards both diagnosis and treatment; indeed, it is only the results of treatment which absolutely prove their true nature.

In the second group, the epileptiform attacks at first predominant subside to the position of being one of many factors. These other factors, as already stated, may be congestive troubles, as tinnitus aurium; moral troubles, as irritability; intellectual troubles, as loss of memory; or paralytic troubles, as hemiplegia. Whence we see that hereditary cerebral syphilis of childhood observes the same succession of symptoms as in the adult.

In the treatment of this form of cerebral syphilis, we may hope for all or nothing, according to the case. The two principal factors which determine the result of treatment are: first, the early or late commencement of specific treatment; second, the exclusively epileptic character of the symptoms, or the presence also of other grave cerebral symptoms. Cure is almost certain when treatment is begun early, at a period when epilepsy exists alone, or when at least there are but slight other cerebral symptoms, the epileptic form being the most amenable to treatment. On the other hand, failure is almost certain when the epilepsy is of long standing, and especially when other grave cerebral symptoms co-exist, such as weakness of intellect, general muscular paresis, sensory troubles, impairment of speech; such cases are well-nigh beyond the resources of art. The fact of the epilepsy having existed for some months is not of so serious a prognosis; certain cases of months' or even years' standing are still susceptible of cure if not complicated by other cerebral

symptoms. The essential point, therefore, for practice is, to make, as early as possible, a correct diagnosis of the nature of the pseudo-epilepsy, and treat it by the only kind of remedies which are applicable to it. This is done by investigating closely into the antecedents of the patient and his family, since the nerve-phenomena depending upon syphilis do not differ from those depending upon non-specific causes. The patient must be minutely examined for signs of hereditary syphilis; if none should be discovered, then the parents must also be examined, and all the brothers and sisters of the patient as well; for, as Dr. Hughlings Jackson points out, the marks of hereditary syphilis may be found in some of the children younger than the patient, as well as more probably in those older.

Headaches and Affections of the Intellect in subsequent lectures.—*L'Union Médicale*, Nos. 62 *et seq.*

The Treatment of Burns.

Thanks to the antiseptic method of wound-dressing, it is now possible to do away with almost all of the disagreeable features which were formerly connected with the treatment of an extensive burn; and such a case may be made to arise from the insignificance of a nuisance and to assume the dignity of an object for enthusiastic interest. Frequent dressing is not only uncalled for, but is very injurious. Odors need not be produced; and as for suppuration, that may be relegated to the past as a pathological curiosity. Nature need not become discouraged and refuse to help the timorous epithelium cells across the little stepping-stones of her granulating surfaces; and repair may be made to go on so rapidly and with such vigour that lagging seldom occurs.

Burns of the first degree, in which the skin is hyperæmic, but is not destroyed at all, are usually of not much importance; but the stinging, burning pain always calls for relief, and this may be promptly and completely relieved by the following method: 1. Tear any convenient soft fabric into strips a couple of inches wide, and spread them thickly with a mixture of carbonate of lead and vaseline in equal parts. 2. After the strips of painted cloth have been applied smoothly over the burned surface, cover the whole with a piece of gutta-percha tissue or oiled silk. 3. Cause a free movement of the bowels. If the carbonate of lead is mixed with vaseline there is no danger of absorption; but if any animal or vegetable oil should be used, there might be some risk in applying this dressing. I have, however, used ordinary white

paint on several occasions without getting any symptoms of lead-poisoning. The gutta-percha tissue prevents the dressing from drying, and adds an element of neatness which is quite important.

If a small portion of the body have been burned, as, for instance, the forearm and hand, the plan to be carried out would be as follows: 1. Anæsthetize the patient. 2. Pull off all of the cuticle which is loose, and all that has been raised in blebs and vesicles. 3. Lay the arm on a towel which has been wrung out in bichloride of mercury solution (1 to 2,000), and carry a rubber blanket underneath all; arrange the rubber blanket in such a way that irrigating fluids shall run into a pail placed for their reception. 4. Scrub the burned area and the skin in its vicinity very thoroughly with a soft brush, and at the same time bathe the parts copiously with bichloride of mercury solution (1 to 2,000) or with a solution of salicylic and boracic acids in the proportion of one grain of the former and six grains of the latter to the fluid ounce of water. 5. Cover the burned surface evenly with strips of protective oiled silk, which have been stored in an antiseptic solution. 6. Sprinkle iodoform along the margins of the strips of protective. 7. Place several layers of carbolized or sublimated gauze over the protective, and cover still further with a thick wadding of borated cotton placed between layers of antiseptic gauze. 8. Apply snugly a carbolized roller bandage. 9. Keep the bowels open. 10. Quiet constitutional disturbance with bromide of potassium and chloral hydrate. The dressing should not be disturbed until the eighth day; and when it is removed it will be found that everything is completely healed, and no further treatment is necessary. Of course, the brush which we use has been washed in an antiseptic solution, and the surgeon's hands must be most carefully prepared before he touches the case.

In another class of cases, where a very large surface of the body has been burned to the second degree, we shall often find it impossible to apply the thoroughly antiseptic dressing which has just been described; and the subnitrate of bismuth treatment, which stands next in value, should be applied as follows: 1. Anæsthetize the patient with chloroform. 2. Remove all clothing, and whatever may adhere to the burned surfaces. 3. Wash all of the injured area with an antiseptic solution. 4. Pull away all loose cuticle, and as fast as it is removed sprinkle the parts beneath thickly with subnitrate of bismuth. 5. Cover lightly with a single layer of soft cloth or sheet-lint. 6. Remove the cloth covering once or twice daily; and wherever any of the subnitrate of bismuth has been

loosened by the discharge, sprinkle more of the powder on the place. 7. During the period of depression and congestion, sustain the heart and relieve the shock of the nervous system by the use of hypodermic injections of morphine. 8. During the period of inflammation, support the heart and aid the inflamed kidneys with digitalis. Quiet the disturbed stomach with belladonna, and give refreshment in the shape of acid drinks. Feed the patient by the rectum, and use peptonized milk only for this purpose. 9. During the period of reaction continue feeding by the rectum, and for the first time cause a free movement from the bowels, using a saline cathartic. 10. When reaction is well established, commence to stimulate the patient with sherry wine, and gradually coax the stomach to bear light, varied diet.—Dr. ROBERT T. MORRIS, in *The New York Medical Record*, May 17th, 1884.

Dr. S. C. Gordon on the Treatment of Gonorrhœa by the Hot-water Douche.

The writer fills a fountain-syringe with a quart of water at a temperature of 100° F., and introducing the tube as high as he can push it, he injects it and allows the fluid to run out. If this gives relief he increases the temperature of the water and repeats the injection, doing this twice or thrice daily. He thus summarises his results:—

"1. I should hope, and confidently expect, to abort, in from three to five days, a large majority of cases that were treated as soon as the first well-known symptoms appeared. In these cases I use the injection as *hot as it can possibly be borne*—three or four times in twenty-four hours; at least two quarts should be used at each time.

"2. In cases of ten days' or two weeks' duration (at which time the inflammatory process has ended), I believe the most of the trouble can be relieved in a very few days. The suffering so characteristic of that stage will usually pass away in twenty-four hours. In many of these cases I have been enabled to force the water into the bladder, and then allow the patient to pass it away immediately. This has a good effect upon the dysuria, relieving it almost at once. In this class of cases, also, the water should be very hot.

"3. Where two or three days have elapsed before the patient is seen, I do not expect so much as in the former classes. Even here much may be done by the external use of very hot water, and the careful, gentle use of the fountain-syringe, filled with *simple warm water*, at about the temperature of the body, or less. This promotes cleanliness, and is a sedative."—*The New York Medical Journal*, April 19th, 1884.

Surgical Delusions.

Chloroform Anæsthesia.—Many still cling to the delusion that chloroform is a safe anæsthetic, because they have never seen a patient die from it. Is one man's experience to weigh against the physiological, the experimental, the clinical experience of the whole world? Dare we employ chloroform instead of ether, when recognized authorities state that in chloroform anæsthesia death occurs without warning in the hands of experienced administrators, when some five hundred deaths have already been reported, when Schiff and Dalton reject it in physiological laboratories because of its mortality, when the Scientific Grants Committee of the British Medical Association assert that chloroform is a more dangerous anæsthetic than ether? Adherence to chloroform in the face of such facts is criminal, when circumstances permit ether to be obtained. The assertion that it is often impossible to produce anæsthesia with ether is the result of inefficient methods of administration. Ether, if given as chloroform is and should be given, is in truth a useless anæsthetic, but given properly it is efficient.

Value of Styptics.—The belief in the necessity of styptics is a delusion less dangerous than that just mentioned, but is given more extended credence. Such agents are seldom, probably never needed in general surgery to arrest hemorrhage. When ligatures, torsion, or acupressure is not demanded (and such is seldom the case unless the artery is as large as the facial), moderate direct pressure applied in dressing the wound is the only hemostatic required. Styptics often do harm, and, as they are not needed, they should be discarded.

Fatality of Small Hemorrhages.—There is much misapprehension about the quantity of blood that a healthy man can lose with impunity. Many who often look with equanimity upon a parturient woman losing a pint of blood from the uterine sinuses, would be dismayed at a man losing half or quarter that amount during removal of a tumor. While not advocating needless waste of blood, and especially in patients suffering surgical shock, I assert that there is an unnecessary fear of blood spurting from a few insignificant vessels. The largest artery can be controlled by pressure not greater than is used for ringing the electric bell in your hotel. Hence there is always sufficent power in your fingers to obviate hemorrhage until strings can be obtained and applied.—Dr. JOHN ROBERTSON, in *The Medical and Surgical Reporter*, Philadelphia, May 24th, 1884.